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(71) Applicant  
Malcolm Cole Limited  
  
(Incorporated in United Kingdom)  
  
4B Hatch Pond Road, Poole, Dorset

(72) Inventor  
Malcolm F. Cole

(74) Agent and/or Address for Service  
D. Young & Co,  
10 Staple Inn, London WC1V 7RD

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(54) Filter unit

(57) A filter unit for filtering water comprises a bowl 10 having an inlet 11 and an outlet 12 surrounded by a cylindrical filter 13, the upper end of the bowl 10 being closed by a removable plate 14 which is clamped to a flange 15 on the bowl by a split ring 19. The split ring and the flange 15 and/or plate 14 have cooperating inclined faces 18, 22, so that when ring 19 is tightened by encircling band 21 the plate 14 is urged axially towards the flange 15. Band 21 is tightened by a thumb screw 24 or an over centre toggle clip.

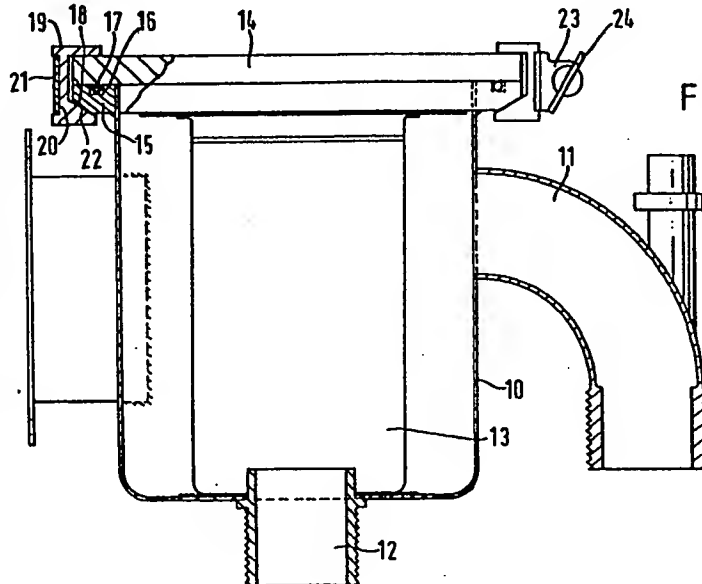


FIG. 1.

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## SPECIFICATION

## Filter unit

5 This invention relates to a filter unit for filtering a liquid such as water.

Water filters are known in which a top closure plate is fixed to a flange provided on the filter chamber by bolts or studs. Thus a considerable amount of time is taken up in securing the top closure plate to enable the filter to be replaced or cleaned and then replacing and securing the top closure plate.

According to the present invention there is provided a filter unit for filtering a liquid, comprising a chamber having an inlet and housing a perforated filter surrounding an outlet, said chamber being closed at its upper end by a closure plate applied to a flange provided on the housing, said closure plate and flange being clamped together by a split ring having an inclined radially inwardly directed face which engages with an inclined peripheral face provided on said flange and/or plate, and means for applying a force to the split ring to cause it to contract radially.

Preferably a sealing ring is provided between the closure plate and the flange.

The means for applying a force to the split ring may comprise a clamping band provided with a thumb screw or toggle action clamp.

An embodiment of the invention will now be described, by way of an example, with reference to the accompanying drawings, in which:-

*Figure 1* is a side view, partly in section, of a water filter according to the present invention,

*Figure 2* is a side view of the upper part of a water filter according to the present invention with an over-centre toggle fastener, and

*Figure 3* is a view taken in the direction of arrow 3 indicated on *Fig. 2*.

The water filter unit comprises a bowl 10 having an inlet 11 and outlet 12. Located in the bowl 10 is a cylindrical perforated filter 13 which surrounds the outlet 12. The upper end of the bowl 10 is closed by a plate 14 which seats on a flange 15 provided on the bowl 10. The flange 15 is provided on its upper face with a circumferentially extending recess 16 housing an O-ring seal 17.

The bottom face of the flange 15 is provided with an inclined face or chamfer 18.

Engaged with the flange 15 and plate 14 is a split ring 19. The ring 19 may be split into two or more segments. The ring 19 is provided on its outer periphery with a recess 20 in which is engaged a band 21. The ring 19 is provided with a radially inwardly facing inclined surface 22 which engages with the inclined face or chamfer 18. The ends of the band 21 are interconnected by a clip 23 having a thumb screw 24. Upon tightening of the thumb screw 24 the band 21 is contracted in

diameter and thus a radially inward force is applied to the split ring 19. Due to the co-operating inclined surfaces 18 and 22 this force is converted into a force clamping the plate 14 tightly onto the flange 15.

When it is required to remove the plate 14 in order to clean or replace the filter 13 the thumb screw 24 is slackened thus allowing the band 21 to expand and remove the force on the split ring 19 which can be disengaged from the plate 14 and flange 15.

Figs. 2 and 3 disclose an arrangement in which the thumb screw 24 is replaced by an over-centre toggle clip 25. When the clip 25 is in the full line position the band 21 is tensioned and when in the broken line position shown in *Fig. 3* the clip 25 allows the band 21 to expand enabling it to be disengaged from the split ring 19.

It will be appreciated that a chamfer could be provided on the plate 14 instead of or in addition to the chamfer 18. In such cases the split ring 19 will have an inclined face which co-operates with the chamfer on the plate 14.

## CLAIMS

1. A filter unit for filtering a liquid, comprising a chamber having an inlet and housing a perforated filter surrounding an outlet, said chamber being closed at one end by a closure plate applied to a flange provided on the housing, said closure plate and flange being clamped together by a split ring having an inclined radially inwardly directed face which engages with an inclined peripheral face provided on said flange and/or plate, and means for applying a force to the split ring to cause it to contract radially.

2. A filter unit as claimed in claim 1, in which a sealing ring is provided between the closure plate and the flange.

3. A filter unit as claimed in claim 2 in which the sealing ring is located in a recess provided in the flange.

4. A filter unit as claimed in any preceding claim, in which the means for applying a force to the split ring comprises a clamping band provided with a thumb screw or toggle action clamp.

5. A filter unit for filtering a liquid, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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FIG. 1.

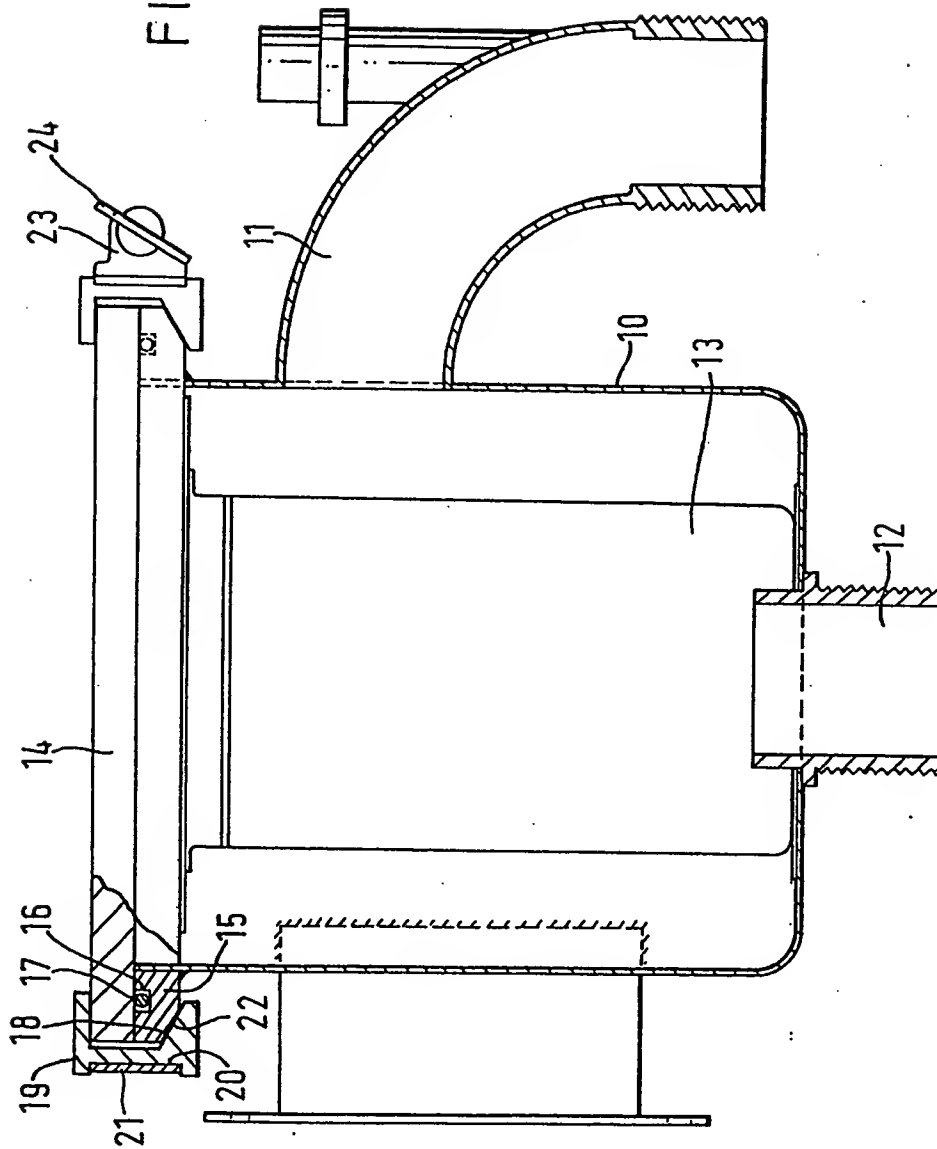


FIG. 2.

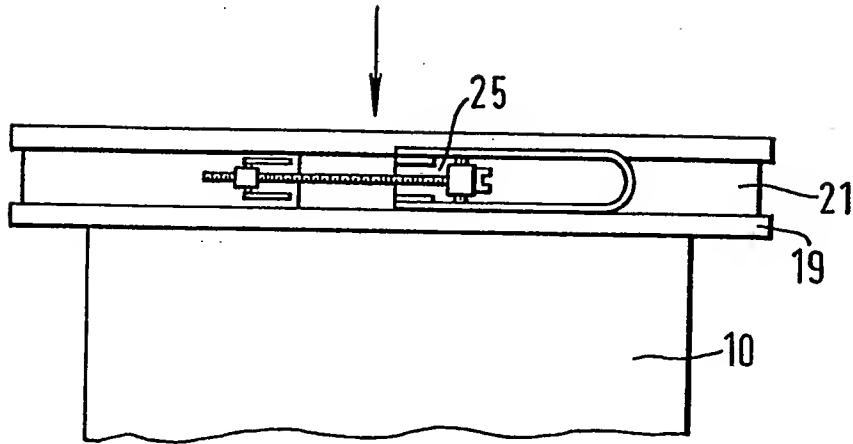


FIG. 3.

